



**DEPARTMENT OF THE ARMY**  
**NEW ORLEANS DISTRICT, CORPS OF ENGINEERS**  
**P.O. BOX 60267**  
**NEW ORLEANS, LOUISIANA 70160-0267**

20 August 2008

**CLEAN WATER ACT, SECTION 404**  
**RIVERS AND HARBORS ACT, SECTION 10**  
**PUBLIC NOTICE**

**Improved Protection on the Inner Harbor Navigation Canal**

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN), is planning to construct a structural barrier to prevent damaging storm surges from entering the Inner Harbor Navigation Canal (IHNC) from the Gulf Intracoastal Waterway (GIWW) - Mississippi River Gulf Outlet (MRGO)-Lake Borgne Complex.

**PROJECT AUTHORITY:** The LPV project was authorized under the Flood Control Act of 1965 (Public Law [PL] 89-298, Title II, Sec. 204) which amended an authorized "project for hurricane protection on Lake Pontchartrain, Louisiana ... substantially in accordance with the recommendations of the Chief of Engineers in House Document 231, Eighty-ninth Congress." The original statutory authorization for the LPV project was amended by the Water Resources Development Acts (WRDA) of 1974 (PL 93-251, Title I, Sec. 92); 1986 (PL 99-662, Title VIII, Sec. 805); 1990 (PL 101-640, Sec. 116); 1992 (PL 102-580, Sec. 102); 1996 (PL 104-303, Sec. 325); 1999 (PL 106-53, Sec. 324); and 2000 (PL 106-541, Sec. 432); Energy and Water Development Appropriations Acts of 1992 (PL 102-104, Title I, Construction, General); 1993 (PL 102-377, Title I Construction, General); and 1994 (PL 103-126, Title I Construction, General).

The Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery of 2006 (4<sup>th</sup> Supplemental – PL 109-234, Title II, Chapter 3, Construction, and Flood Control and Coastal Emergencies) authorized construction of a 100-year level of protection. Additional Supplemental Appropriations include the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act of 2007 H. R. 2206 (pg. 41-44) Title IV, Chapter 3, Flood Control and Coastal Emergencies, (5<sup>th</sup> Supplemental), General Provisions, Sec. 4302.

**PROJECT PURPOSE:** The purpose of this project is to provide, in a timely manner, the 100-year level of protection from flood damage due to flooding from hurricanes and other tropical storms in the communities surrounding the IHNC.

**DESCRIPTION OF ACTION:** The proposed action consists of the construction of 2 miles of new flood protection extending from the Michoud floodwall north of the GIWW to the levee on the west side of the MRGO. The flood protection would cross the GIWW, Bayou Bienvenue, the MRGO, and the Golden Triangle marsh between these waterways. The project would consist of a braced concrete wall across the MRGO, a new flood control structure on Bayou Bienvenue, a sector gate and adjacent barge swing gate on the GIWW, and a concrete floodwall across the

marsh. The footprint of the area impacted by construction of the floodwall would be approximately 350 ft wide and 5,400 ft long.

During construction, a 17-foot-deep channel, approximately 350 ft wide, would be dredged by a cutter-head dredge from the MRGO to the GIWW for construction access and materials delivery to construct the concrete floodwall. Approximately 1,400,000 cubic yards of material dredged to create this channel would be used beneficially on the floodside of the floodwall in a 205-acre, open-water disposal area, which is within a 705-acre area in the Golden Triangle marsh proposed for dredge disposal. The beneficial use of dredged material would occur concurrently with construction of the proposed action. Specifically, the dredged material would be directed into open water ponds east of the proposed barrier structure via dredge pipe. Earthen and sheet pile dikes would be constructed to an elevation of +4 ft to semi-contain the dredge material within the open water ponds to prevent seepage of material into existing pipeline canals or the GIWW. Dredge pipes would be directed initially into the southern and eastern ends of the open water ponds. As the ponds fill with dredged material, the pipes would be backed out toward the entrance to minimize movement of the dredge pipe and disturbance of marsh. The initial fill elevation is expected to be approximately +4 ft and settlement is estimated to be approximately +1 ft.

Approximately 62 acres of staging areas are necessary for construction of this project. One 27-acre property identified for the job site complex management and staging is fronted by the Michoud Canal for a length of approximately 714 feet. From this location precast concrete units and raw concrete will be transferred to and from barges for transportation to the construction site. On the property there is an existing "bulkhead," which consists of two barges sunk into place and sheet piling filling in gaps between the barges and tying to the land side to the north. The barges and any low areas behind the sheet piling have been filled with aggregate to create a relatively uniform working surface. Improvements to the existing marine access are required for the heavy operations associated with the IHNC project. A new bulkhead wall is proposed for the length of the property. The bulkhead is anticipated to be a tie-back sheet pile system. Its function is to provide a retaining wall between the land-based precast concrete storage area and the Michoud Canal. To construct a new bulkhead the sunken barges would be left in place. New sheet piling will be driven a few feet away from the barges (channel side) with tie-backs to a pile supported system landside of the barges. The space between the barges and the new sheet piling will be filled with grouted rip rap capped with reinforced concrete level with the finished grade. Temporary mooring areas consisting of clustered pile dolphins would be constructed within the channels in the immediate vicinity of the construction site to moor barges and tows.

In addition, pile load test sites would be located near the proposed alignment within the right-of-way to be acquired for this project. The footprint of each test pile would be 100 ft by 100 ft, each test would require 4 to 11 piles, and the length of the piles would range from 90 to 250 ft.

DISPOSAL SITES: The flood protection structure will span from the GIWW just east of the Michoud Canal, across the Golden Triangle marsh to the MRGO just south of Bayou Bienvenue. Approximately 1.4 million cubic yards of dredged material will be pumped from the project area

into the 205-acre, open-water disposal area within the Golden Triangle Marsh, between the MRGO and the GIWW. The bulkhead would be built on the Michoud Canal.

METHODS OF DISCHARGE: In the MRGO, the equipment to be used includes a large, barge-mounted, ringer crane and supply barges needed to drive the large piles for the wall. The sector gates on Bayou Bienvenue and the GIWW would be constructed inside a sheetpile-braced cofferdam, where the cut-off steel sheetpiles from the cofferdam would serve as the permanent cut-off wall for the gate monolith, with foundation consisting of vertical 24-inch square, hollow-core, precast concrete piles. The prefabricated sector gates would be lifted or floated into place through the use of large, barge-mounted cranes and supply barges. For the GIWW bypass gate, the vertical pile supported abutments for the gate would be driven within independent, braced sheetpile cell cofferdams. Additional sheetpiles will be driven to form a cutoff wall across the navigation pass and a stainless steel weldment will be connected to the sheetpiles underwater to complete the sill construction. Large, barge-mounted, ringer cranes and supply barges will also be used within the dredged access channel to hammer drive concrete piles.

Dredge material will be directed into the 205-acre, open-water, disposal area via dredge pipes that pump the material directly from its origin. The dredge pipes will be floated in and directed into the open water ponds near the earthen dikes. The southern and eastern ends of the open water ponds are anticipated to be filled with material first. The pipes then would be backed out toward their entrance points to minimize disturbance of existing marsh.

PROPERTIES ADJACENT TO DISPOSAL SITES: Property south of the beneficial use disposal site, the Golden Triangle marshes, and the MRGO is primarily uninhabited land within the Chalmette Loop Hurricane Protection System in St. Bernard Parish. To the north of the beneficial use disposal site, across the GIWW in Orleans Parish, are properties covered by undeveloped, forested wetlands and industrial facilities near the Michoud Canal. The northern end of the disposal area is within the western tip of the Bayou Sauvage National Wildlife Refuge property, which extends to the east and northeast of the disposal area.

QUANTITIES AND FREQUENCIES: Approximately 1.4 million cubic yards of dredge material will be beneficially used to enhance the Golden Triangle marsh.

The following quantities will be used to construct the bulkheads adjacent to the staging area:

ITEM	UNITS	QUANTITY	NOTES
Z-SECTION SHEET PILING	S.F.	66,400	Assumed length of sheet pile = 80 feet
Structural steel and metalwork	Tons	70	Miscellaneous steel for bulkhead construction
Tie-back system	LF	830	Series of tie rods to pile supported dead men.
Grouted rip-rap	CY	2,050	
CIP concrete finish cap	CY	465	5' deep
Partial barge removal	SF	250	Measured in plan.
Six-boat dock	Each	1	

The following quantities will be used to construct the floodwall across the marsh:

Concrete (cubic yards [cy])	100,900
Concrete or Steel Piles (volume per linear foot [vlf])	Concrete 66" - 148,200
Fill (cy)	Steel 18" – 102,600
	Steel – 162,400
	Sand – 80,800
Rock (cy)	Riprap – 86,000
	Crushed stone – 86,000

**EVALUATION FACTORS:** The decision whether to place fill material will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of natural resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and aeration, recreation, water supply and recreation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

**NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE:** The impacts of the proposed action and alternatives to the proposed action will be analyzed and disclosed in Individual Environmental Report (IER) #11, Tier 2 Borgne.

**STATE WATER QUALITY CERTIFICATION:** A Water Quality Certification application was sent to the Louisiana Department of Environmental Quality (LDEQ) on June 12, 2008, and the certification was received from LDEQ on July 11, 2008. Public notice regarding this certification was placed in the Baton Rouge Advocate and Times-Picayune on June 23, 2008.

SECTION 404(B)(1) GUIDELINES: The placement of earthen fill material into the waters of the U.S. will be made through the application of guidelines promulgated by the Administrator, Environmental Protection Agency, in conjunction with the Secretary of the Army. If these guidelines alone prohibit the placement of earthen fill material, any potential impairment on the restoration and completion of the Lake Pontchartrain and Vicinity Hurricane Protection System which would result from failure to place this material will also be considered.

COASTAL ZONE CONSISTENCY DETERMINATION: A Coastal Zone Consistency Determination was prepared in May 2008 and coordinated with Louisiana Department of Natural Resources (LDNR). Based on this coordination it was determined that the Project was consistent to the maximum extent practicable on August 1, 2008.

ENDANGERED SPECIES: In letters dated June 13, 2008, the U.S. Army Corps of Engineers, New Orleans District, Hurricane Protection Office submitted to National Marine Fisheries Service and U.S. Fish and Wildlife Service its determination that the proposed project would not adversely impact any threatened or endangered species or critical habitat thereof which falls under their jurisdiction. In a letter dated June 27, 2008, the U.S. Fish and Wildlife Service concurred with this determination. In a letter dated August 12, 2008, the National Marine Fisheries Service concurred with this determination.

ESSENTIAL FISH HABITAT: Direct impacts to Essential Fish Habitat (EFH) would occur due to changes in estuarine substrate including 108 acres of sand/ shell and mud bottom and open water within the footprints of the floodwall and other structures. Approximately 99 acres of salt/brackish marsh would also be impacted by the proposed project.

During construction and operation of the proposed structure, direct impacts to EFH and EFH species may occur from a localized reduction in available nursery habitat for juveniles and access to marsh edge habitat. Mortality of some individual organisms designated as EFH species may occur during construction activities due to burial during dredging and disposal. While individual organisms are expected to move from unfavorable conditions, this change is not expected to affect populations of managed species for which EFH has been designated.

To partially offset these impacts, dredged material will be beneficially used adjacent to the project area. Dredged sediment will be pumped into open water ponds in this area to create conditions conducive to the establishment of additional marsh habitat in the future. Temporary and potentially permanent impacts to EFH may occur in association with this beneficial use due to turbidity during construction and permanent conversion of water bottoms and water column habitat to marsh.

An access channel parallel and adjacent to the barrier footprint would be dredged for construction of the barrier. The portion of this channel not occupied by the barrier after construction would create additional open water habitat; however, both ends of the channel would be closed with an engineered barrier or plug.

During the advanced measures, a 150-ft wide barge gate would be constructed on the GIWW to allow for unimpeded navigation and to maintain flow. The proposed cofferdam on Bayou Bienvenue would have four 48" culverts with 4-5 inch mesh on the ends to allow water exchange and movement of some life history stages of some species while the cofferdam is in place during construction of the permanent gate. While the culverts and cofferdam are in place, a limited number of organisms will be able to move between the flood and protected side of the barrier in Bayou Bienvenue and surrounding tidal streams.

Once construction is complete, the barge gate on the GIWW could be open or closed, and the adjacent permanent 150-ft gate would be open. Bayou Bienvenue would have a 56-ft wide gate with a -8 ft elevation sill to allow flow and navigation. After construction is complete, movement of organisms will be constricted to the gate openings. Additionally, movement of some organisms may be further inhibited since modeling results predict flows greater than 2.4 ft/sec through Bayou Bienvenue 50% of the time during the wet period (March) in an area approximately twice the distance from the gate. Expected velocities in the GIWW would be approximately 0.6 ft/sec.

Placement of the floodwall could cause both temporary and permanent impacts as a localized reduction in and access to marsh edge and inner marsh habitat because conduits between the protected and flood side of the barrier would occur only on Bayou Bienvenue and the GIWW. A reduction in access to these habitats has direct and indirect consequences including slower growth rates because organisms use more energy to hide from predators or search for prey items, an increase risk of predation, and a decrease in prey items that occur in these habitats.

Indirect impacts on EFH and EFH species may occur during construction due to changes in water characteristics. Impacts on EFH and EFH species most likely would be temporary; indirect impacts would be caused by the displacement of organisms from localized areas due to elevated turbidity levels, decreased DO, and increased BOD associated with construction dredging activities. Most organisms are expected to relocate from areas with unfavorable conditions until construction activities are complete; however, depressed DO levels in the project area may lead to behavioral changes and decreased growth rates in some EFH and EFH species.

Temporary and permanent impacts could occur as localized alterations in the salinity of open-water habitats because freshwater influx and tides would be restricted in the Golden Triangle marsh between the GIWW and the MRGO. Maximum changes to salinity in the project area would be 1.0 ppt or less with the proposed action. This change in salinity would not impact EFH or EFH species under typical conditions.

Both during construction and after it is complete, localized alterations in the hydrology of open-water and marsh habitats may occur because freshwater influx and tides would be restricted in the marsh between the GIWW and the MRGO. Hydrology modeling predicted that, relative to baseline conditions, the proposed action when completed could result generally in a decrease in maximum tidal elevations of about 2.4 inches or less in areas on the protected (west) side of the

proposed barrier and an increase in maximum tidal elevations of about 2.4 inches or less in locations on the flood (east) of the barrier. Modeling of the effects on hydroperiod indicated that on both the protected side and the flood side of the barrier the majority of marsh areas would experience no change in the duration of wetting and drying or a decrease of up to 2 hrs in the duration of wetting. The model indicated that only a few modeling points on each side of the barrier could be wetted for up to 2 hours longer each day compared to baseline conditions (USACE, 2008).

In addition, the proposed action could result in localized velocity changes within two of the navigable waterways of the project area. Average velocities within Bayou Bienvenue are expected to be in the range of about 2.4 to 2.6 ft/sec depending on if the GIWW bypass gate is in the open or closed position. Expected velocities within the GIWW would be about 0.6 ft/sec. For all locations, modeling scenarios indicated velocities and water levels decreased on the western side of the structures at distances from the structure on the order of twice the width of the structure. Although the velocity through the Bayou Bienvenue gate would be less than the maximum velocity that was modeled, it would approach the 2.6 fps threshold on occasion and velocities in the project area would exceed the average swimming speed of some fishes. Fish movement through the various gates would fluctuate with tides and weather events. During some weather or tide events, conditions may occur that hinder fish and macroinvertebrates movement; however, movement would not be inhibited during all conditions. Given these results, the proposed project would be manageable for larger fishes (> 300mm), but it would be difficult for smaller fishes (< 100 mm) and macroinvertebrates to traverse the gate at Bayou Bienvenue.

Finally, construction activities such as pile driving may cause behavioral changes and sub-lethal impairments to the hearing of some fishes. Although individuals may be taken during construction activities for the proposed alignment, the number of organisms affected is not expected to impact populations of fishes.

Overall, the proposed action could directly impact EFH on the flood and protected side of the barrier. Possible impacts could be: impeding active and passive transport of eggs and larvae across the barrier, blocking access to habitat, and blocking access to prey items. These impacts could result in alterations in behavior, decreases in growth, and localized changes to the community structure.

CULTURAL RESOURCES: In letters to the SHPO and Indian Tribes dated 19 May 2008, the New Orleans District provided project documentation, evaluated cultural resource investigation results, and found that proposed construction of the proposed action would have no adverse impacts on cultural resources. The SHPO concurred with our "no adverse effect" finding a letter dated June 17, 2008. The Choctaw Nation of Oklahoma, Alabama Coushatta Tribe of Texas, and the Caddo Nation of Oklahoma concurred with our effect determination in letters and an email dated May 29, 2008, June 16, 2008, and May 20, 2008, respectively. No other Indian Tribes responded to our requests for comment. Section 106 consultation for the proposed action is concluded. However, if any unrecorded cultural resources are determined to exist within the project area of the proposed action, then no work will proceed in the area containing these

cultural resources until a New Orleans District archaeologist has been notified and final coordination with the SHPO and Indian Tribes has been completed.

COORDINATION: The following is a partial list of agencies to which a copy of this notice is being sent for coordination purposes:

Region VI, Environmental Protection Agency  
Regional Director, NOAA Fisheries Service  
Regional Director, U.S. Fish and Wildlife Service  
Louisiana Department of Wildlife and Fisheries  
Louisiana Department of Environmental Quality  
Louisiana Department of Natural Resources  
Louisiana Department of Transportation and Development  
Louisiana State Historic Preservation Officer

PROJECT PLANS: Plans for the proposed work will be on file in the Hurricane Protection Office, U.S. Army Corps of Engineer District, New Orleans, 7400 Leake Avenue, New Orleans, Louisiana 70118, and when they become available, may be seen by anyone having an interest in them.

PUBLIC INVOLVEMENT: Interested persons may submit comments or suggest modifications regarding the proposed work in writing to Gib Owen, PM-R, P.O. Box 60267, New Orleans, Louisiana 70160-0267. Mr. Owen can also be reached at (504) 862-1337.

All comments received within 30 days of the date of this notice will be considered.

Any person who has an interest which may be affected by these fill placement activities may request a public hearing. The request must be submitted in writing to Mr. Owen within the comment period of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity. You are requested to communicate the information contained in this public notice to any parties who may have interest in this proposed project.

  
Elizabeth Wiggins  
Chief, Planning Division